FORAGE ANALYSIS INTERPRETATION

Understanding a forage analysis is important when determining how to balance livestock rations. Sampling hay to determine daily nutrient intake, maintenance or a gain ration can help you make decisions on what kind of supplementation you may or may not need. Our office can facilitate in taking samples. We have a bale core sampler and work with Midwest Labs in Nebraska for getting results.

Lab results can look different, but the basics ones will all have an "as received basis" and the "dry matter basis." The "as received basis" represent nutrient content with moisture included. Due to the presence of water, these values are lower than those in the dry matter basis column.

The values in the dry matter basis gives you the nutrient profile after water is removed. Using nutrients on a dry matter basis makes balancing rations easier because animal requirements are generally reported on a dry matter basis.

Most reports give you crude protein of the forage. This is the measurement of the nitrogen content of forage and includes both non-protein nitrogen and true protein. Alfalfa hay will typically be higher in protein values than grass or mature hay.

Plants are made of fiber as it gives the plant structure and rigidity called Lignin. Lignin is poorly digested within the rumen and as forage matures, cell walls will become more lignified and less digestible. Fiber is reported by Acid Detergent Fiber (ADF) and Neutral Detergent Fiber (NDF). As the ADF increases forage digestibility decreases and as NDF increases in forage, dry matter intake decreases.

A plant has crude fat and is 2.25 times the energy density of carbohydrates or protein. These are oils and other compounds found naturally in forages, thus getting the total digestible nutrients (TDN) on your forage sample is important. TDN is the digestible fiber, protein, fat and carbohydrates components of forage. Typically, high quality forages like alfalfa range from 50 to 60 percent TDN while low quality forages like a mature grass range from 40 to 50 percent TDN.

Relative Feed Value (RFV) is an index that utilizes the fibrous portion of the forage and is calculated using the ADF and NDF values. The scale varies above or below a base index value of 100, which represent an alfalfa forage at 100 percent bloom. Forages about 100 are considered higher quality and less than 100 is lower quality forages. Grasses provide good nutrition to animals but are higher in fiber than legumes and are often undervalued by the RFV system. If you are buying and selling alfalfa hay RFV may be a good tool to use for a quick refence but really is not needed on balancing a ration.

Other tests can be done as well on forages such as mineral content. The most common are calcium, phosphorus, potassium, magnesium and sulfur. If growing an annual crop such as oats, wheat or barley testing for nitrates is important as well.

For more information contact the MSU Powell County Extension Office at 846-9791